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## APPENDIX K

# Coarse Filter Screening Objectives, Methods, and Results

Submitted by Fred Clark of Clark Forestry, Inc., December 15, 1999

## Project Background

The Wisconsin Department of Natural Resources, Natural Heritage Inventory (NHI) is undertaking an ecological assessment of the Wolf River basin using a coarse filter approach. The objective of the assessment is to identify sites with high potential for occurrences of threatened, endangered and special concern species or natural communities, or sites of otherwise high conservation value. The primary emphasis was identification of potential occurrence quality natural communities. A related goal of the project was to create a cost-effective, and easily replicated process to identify sites using GIS, aerial photography and existing information sources, and compare the results of such a process to the results of an experts workshop, which was convened by the staff of the Northeastern region, with assistance from NHI on 12/3/99.

Budget and time constraints did not allow for ground truthing or field work to support the coarse filter process. It was assumed that the methods used in this process would result in missing many small areas and areas whose attributes could not be captured using existing information sources (see results and recommendations sections). Areas most likely to be missed would be small (<40 -80 acres) areas of significance, or areas with unique values that are not easily identified through existing data layers.

## Methods

### A. Information Resources Used

#### GIS Data Layers Provided by WDNR Geographic Services

- Wiscland Level I and Level II
- Hydrology
- Original Vegetation Cover
- 75 M. Elevation Model
- Land Type Association Coverage and Descriptions
- Ecological Landscapes
- State Lands

#### GIS Data Provided by NHI

- Element Occurrences (precise to within ¼ ¼ section)
- Natural Community descriptions
- 7.5 Minute Topographic Maps

Photography provided by WDNR Forestry – 1992-1997, 1:15,840, B/W IR

## **B. Phase One**

Using existing occurrences of natural communities, we designed and refined queries using the Wisland coverage. The purpose of the first selection queries was to capture the majority of Natural Communities while excluding the majority of highly disturbed areas, which resulted in a manageable number of areas on which to perform photo-inspection.

Based upon the gross patterns of vegetation and landforms within the basin, the GMU was divided into three sub-units for purposes of analysis. Each sub-unit had its own unique criteria for phase-one filtering based on land form, vegetation patterns, and the relative significance of various habitats. For all of the sub-units the phase-one selection was based on multiple criteria designed to capture the following land attributes:

- Extensive habitat blocks based on polygon size
- Slopes and unique microhabitats based on topography
- Sites with likely to support relict natural communities based on original vegetation
- Sites with high management context based on proximity to State lands

## **C. Phase Two**

All areas captured through queries in the phase one process were assessed using aerial photography and 7.5' USGS topographic maps. We used 1993-1997, 1:15,840 scale, black and white infra-red photography that was loaned by the WDNR Forestry Bureau. Locations and descriptions of existing natural communities were used to help truth photo work in each area.

Sites selected for final inclusion in phase-two process had at least one of the following characteristics:

- Extensive and contiguous habitat blocks with at least some significant areas of relatively intact, undisturbed habitat
- Areas of mature forest showing species and structural diversity.
- Extensive areas of wetland habitat with relatively natural drainage patterns and good buffering and protection from surrounding uplands.
- Multiple habitat mosaics showing little disturbance and apparently natural juxtaposition.
- Springs with good surrounding habitat and natural drainage pattern.
- Streams with intact watersheds, mostly buffered from natural vegetation.

Sites meeting these criteria were mapped on topographic maps (for an overview of all mapped sites see Map 3 in the main document). Information included a site boundary and point locations of unique areas that appeared to warrant special attention.

Following mapping, sites were described in a database. The database included the following fields: site number; site name (if known); TRS location; map name; photo numbers; site description; unique area description; disturbance factors description; and three level (Low-Medium-High) ranking for landscape context, ownership context and inspection priority. A recommendation for type of field survey (upland botanical, wetland botanical, aquatic, songbird and general) was also provided.

The following pages detail the criteria used for first and second phase selection in each of the three sub-units.

## Site Selection - Southeast Quadrant

### Description

Primarily agricultural matrix with small upland forest patches and more extensive wetlands surrounding the Wolf and tributaries. Generally level with little relief. Landforms are almost exclusively lake plains with some moraines and occasional bedrock features. Maps of all sites selected through the Coarse Filter Screening process are available in original form at the Bureau of Endangered Resources office.

### Major Natural Communities

Shallow-hard-drainage lakes, Floodplain Forest, Northern Wet-Mesic, Northern Mesic, and Northern Dry-Mesic Forests. Numerous aquatic occurrences including Lake Sturgeon.

### Criteria for Selection

TABLE K-1			
Eco-Type*	WISCLAN D Class	1 <sup>st</sup> Selection Criteria	2 <sup>nd</sup> Selection Criteria
Conifer Forest	173	> 100 ac.	15+” avg. dbh, presence of super-story white pine, presence of hemlock, significant size or buffering from natural features.
Hdwd Forest	177, 183, 187, 190	> 200 ac., >20 Ac. w/ slopes >5°	15+” avg. dbh, presence of super-story white pine, significant size or buffering from natural features.
Mixed Upland Forest	190	> 60 ac., >20 Ac. w/ slopes >5°	15+” avg. dbh, presence of super-story white pine, presence of hemlock, significant size or buffering from natural features.
Emergent Wetland	211	> 300 ac.	Presence within wetland community complex, streams or navigable waters within unit, lakes and springs present.
Lowland Shrub	217, 218	> 300 ac.	Presence within wetland community complex, streams or navigable waters within unit, lakes and springs present.
Lowland Shrub – Conifer – Evergreen	219,220	> 20 ac.	Presence within wetland community complex, streams or navigable waters within unit, lakes and springs present.
Swamp Hardwood	223	> 200 ac.	>15”+ avg. dbh, presence within wetland community complex, streams or navigable waters within unit, lakes and springs present.
Swamp Conifer	229	> 40 ac.	>15”+ avg. dbh, white cedar present, presence within wetland community complex, streams or navigable waters within unit, lakes and springs present.
Mixed Conifer/Hdwd.	234	> 100 ac.	>15”+ avg. dbh, white cedar present, presence within wetland community complex, streams or navigable waters within unit, lakes and springs present.
Barren/Hayland	150, 240	> 40 ac., >20 Ac. w/ slopes >5°	Warm Season Grasses Present
Streams		Forested > 1 Mile	To be developed
Forest and wetland types	173-190, 211-240	>40 acres and within 500M of a plant, bird or Natural Comm. EO	Same as for types above.

## Site Selection - Southwest Unit

### Description

Primarily interspersed agricultural and forest land with scattered wetlands which are more localized than in SE section. Many small tributaries and river headwaters drain to the East. Generally level with moderate relief from drumlins and morainal knolls. Landforms are pitted outwash interspersed with moraines and collapsed moraines with many drumlins. Maps of all sites selected through the Coarse Filter Screening process are available in original form at the Bureau of Endangered Resources office.

### Major Natural Communities

Shallow-hard-drainage lakes, Floodplain Forest, Northern Wet-Mesic, Northern Mesic, and Northern Dry-Mesic Forests. Numerous aquatic occurrences including Lake Sturgeon.

Application of 1<sup>st</sup> selection criteria resulted in 87,970 acres or 9% of the unit.

### Criteria for Selection

TABLE K-2			
Eco-Type*	WISCLAN D Class	1 <sup>st</sup> Selection Criteria	2 <sup>nd</sup> Selection Criteria
Conifer Forest	173	> 40 ac.	15+” avg. dbh, presence of super-story white pine, presence of hemlock, significant size or buffering from natural features.
Hdwd Forest	177, 183, 187, 190	> 300 ac., >20 Ac. w/ slopes >5°	15+” avg. dbh, presence of super-story white pine, significant size or buffering from natural features.
Mixed Upland Forest	190	> 60 ac., >20 Ac. w/ slopes >5°	15+” avg. dbh, presence of super-story white pine, presence of hemlock, significant size or buffering from natural features.
Emergent Wetland	211	> 100 ac.	Presence within wetland community complex, streams or navigable waters within unit, lakes and springs present. Natural drainage patterns.
Lowland Shrub	217, 218	> 100 ac.	Presence within wetland community complex, streams or navigable waters within unit, lakes and springs present. Natural drainage patterns.
Lowland Shrub – Conifer – Evergreen	219,220	> 20 ac.	Presence within wetland community complex, streams or navigable waters within unit, lakes and springs present. Natural drainage patterns.
Swamp Hardwood	223	> 200 ac.	>15”+ avg. dbh, presence within wetland community complex, streams or navigable waters within unit, lakes and springs present.
Swamp Conifer	229	> 200 ac.	>15”+ avg. dbh, white cedar present, presence within wetland community complex, streams or navigable waters within unit, lakes and springs present.
Mixed Conifer/Hdwd.	234	> 100 ac.	>15”+ avg. dbh, white cedar present, presence within wetland community complex, streams or navigable waters within unit, lakes and springs present.
Barren/Hayland	150, 240	> 40 ac., >20 Ac. w/ slopes >5°	Warm Season Grasses Present

## Site Selection - North Quadrant

### Description

Primarily forest land. Many small tributaries and river headwaters drain to the East. Generally level with moderate relief from drumlins and morainal knolls. Landforms are pitted outwash interspersed with moraines and collapsed moraines with many drumlins. Maps of all sites selected through the Coarse Filter Screening process are available in original form at the Bureau of Endangered Resources office.

### Major Natural Communities

Shallow-hard-drainage lakes, Floodplain Forest, Northern Wet-Mesic, Northern Mesic, and Northern Dry-Mesic Forests.

### Criteria for Selection

All state owned lands within the northern region were photo-inspected.

TABLE K-3		
Eco-Type*	WISCLAND Class	2 <sup>nd</sup> Selection Criteria
Conifer Forest	173	15+” avg. dbh, presence of super-story white pine, presence of hemlock, significant size or buffering from natural features.
Hdwd Forest	177, 183, 187, 190	15+” avg. dbh, presence of super-story white pine, significant size or buffering from natural features.
Mixed Upland Forest	190	15+” avg. dbh, presence of super-story white pine, presence of hemlock, significant size or buffering from natural features.
Emergent Wetland	211	Presence within wetland community complex, streams or navigable waters within unit, lakes and springs present. Natural drainage patterns.
Lowland Shrub	217, 218	Presence within wetland community complex, streams or navigable waters within unit, lakes and springs present. Natural drainage patterns.
Lowland Shrub – Conifer – Evergreen	219,220	Presence within wetland community complex, streams or navigable waters within unit, lakes and springs present. Natural drainage patterns.
Swamp Hardwood	223	>15”+ avg. dbh, presence within wetland community complex, streams or navigable waters within unit, lakes and springs present.
Swamp Conifer	229	>15”+ avg. dbh, white cedar present, presence within wetland community complex, streams or navigable waters within unit, lakes and springs present.
Mixed Conifer/Hdwd.	234	>15”+ avg. dbh, white cedar present, presence within wetland community complex, streams or navigable waters within unit, lakes and springs present.

## Results

### A. Phase One

- In the SE sub-unit application of phase-one selection criteria resulted in 182,579 acres or 18.8% of the unit being selected for photo-interpretation.
- In the SW sub-unit application of phase-one selection criteria resulted in 90,464 acres or 11.2% of the unit being selected for photo-interpretation.
- In the North sub-unit, all State-owned lands (13,188 acres) and adjoining areas were inspected, resulting in over 5% of the unit being selected for photo-interpretation.

\* Sites mapped and identified through the phase-two process were not strictly a sub-set of the Phase-one areas, but also included 'opportunistic' assessment of surrounding lands. Thus the acreage actually photo-inspected to develop the final set of mapped sites may have been 10-25% larger than the phase-one results.

### B. Phase Two

A total of 135 sites were identified, mapped and described. A summary report was developed for each site and includes a map of the site and information on the location, land cover, unique resources, disturbance factors, landscape and ownership context, inspection needs, and inspection priorities. The full set of site summaries is available in original form at the Bureau of Endangered Resources office. Table K-4 on the following pages provides a summary of the above site information. Map #3 shows the location of all sites within the basin that resulted from the coarse filter screening process, as well as the expert site process described in the next appendix.

The average site size was 1,347 acres, ranging from 41 acres to 7,171 acres.

#### Summary Table of Final Site Selection

TABLE K-4			
Sub - Unit	# of Sites	Acreage of Sites	% of Unit
Southeast	70	91,845	9.4
Southwest	55	76,559	9.5
North	10	13,350	2.3
<b>Total</b>	<b>135</b>	<b>181,754</b>	<b>7.75% of Basin</b>

## Assessment and Recommendations

### A. Comparison with Experts Sites

A systematic comparison of experts selected sites versus coarse filter derived sites has not been performed as of this writing, but general comparisons can be made. When compared to results of site selection by local experts, the coarse filter sites are generally larger and more terrestrial than the expert's sites. Experts identified a number of aquatic sites not identified through the coarse filter process. By comparison the coarse filter process identified very few sites based on aquatic features alone. The coarse filter process identified a large number of terrestrial sites which were either unknown or considered unimportant by experts. In many cases the limitations on detail inherent in the coarse filter approach made comparisons of coarse filter and expert sites difficult.

### B. Improvements to the Coarse Filter Process

The results of coarse filter assessment performed under this project can be considered moderately successful, however there are several areas of potential improvement.

#### 1). Increased Ground Truthing and Field Verification.

No direct ground-truthing was performed during the project, although field notes from botanists were used as a method of ground-truthing in a limited area. The lack of ground-truthing made precise identification and descriptions of many sites difficult. Even limited field verification of benchmark sites around the study area could be a productive way to increase accuracy of site descriptions. Windshield surveys of selected sites would help further filter out sites not meeting criteria for selection.

#### 2). Increased landscape scale assessment prior to site selection

The amount of ecological assessment prior to site selection needs to be increased. This should include more detailed assessment of LTA's, Ecological Landscapes and their distinctive landforms and vegetation. This work should combine research on existing maps and narratives, together with a field tour to area for the staff who will be performing the mapping and photo-interpretation work.

#### 3). Increased interviews with local experts.

On the Wolf project, we had little input from area 'experts', partly due to time constraints, and partly due to a desire to compare the results of the expert workshop against the un-biased coarse filter approach. This lack of outside input was also a limitation in selecting the best sites. Short of identifying individual sites, foresters, wildlife managers and others with extensive local knowledge could provide input on features of interest, landforms supporting priority community types, and other ecological tips that may be impossible to obtain from other means.

### C. Other Approaches

Particularly in the northern part of the basin, use of the Wiscland coverage alone did not provide a sufficient means to pre-select sites for inspection. The size of polygons in predominantly forested areas is too large to allow for effective querying based on land cover type alone. Thus, in order for a GIS based coarse filter system to be effective, other means of classifying land using remote sensing needs to be developed. Tools to do this type of analysis in heavily forested areas would include Landsat and other visible and non-visible spectrum satellite images, small scale aerial photography, and the image analysis tools necessary to classify these images to identify desired features such as old-growth forest patches, wetland complexes, and other features of interest. The cost and feasibility of this process needs to be researched.



**TABLE K-5****Coarse Filter Screening Sites**

The information below was developed by Clark Forestry, Inc. upon completion of the Coarse Filter Screening and has not been field verified by Clark Forestry, Inc. or BER.

Site ID	Site Name	Acreage	Site Description	Threats/Disturbance factors	Landscape Context	Ownership Context	Inspection Priority	Ecological Landscape	Survey Type
FOR01	Bog Brook State Wildlife Area	550	Extensive bog surrounded by upland Northern hwdws comprised of pole and small saw timber. Site demonstrates moderate-steep slopes supporting transitions from bog to shrub wetland. Site follows Bog Brook. Included in Bog Brook State Wildlife Area.	Northern and western portions of site demonstrate past harvesting. Southern edge of Bogbrook Lake developed by gravel pits and harvesting. Areas following borders fragmented by access roads and harvesting.	MOD	HIGH	MOD	North Northeast Hills	AQ/UB
FOR02	Little Rice Lake	1621	Extensive bog with mixed swamp conifer/hdwd complex. Some mature hwdws in NE and along south shore of Little Rice Lake - otherwise uplands unexceptional. Included in Little Rice State Wildlife Area.	Extensive timber harvesting and land clearing in north edge of lake basin.	MOD	HIGH	MOD	North Northeast Hills	AQ/WB
LAN01		1094	Mixed upland hwdws with areas of second growth in addition to selection harvesting.	Site disrupted by pine plantations and agriculture. Past harvesting throughout area, while northern and western borders demonstrate less disturbance. Buffered along southern and northern edge by fragmented hwdws. Hwy F, Stoney and Orchard Rd. cross site.	MOD	LOW	LOW	South Northeast Hills	UB
LAN02	Demlow Lake State Fishery Area	954	Mixed swamp conifer/hdwdws with upland hdwd inclusion. Site follows path of Mayking Crk., including Kennedy and Upper/Lower Demlow Lake. Potential to support Northern wet-mesic forest. Area demonstrates little disturbance.	Interior less disturbed as compared to borders. Site disrupted by farm inclusion and access roads. Hwy AA, Crestwood, and Orchard Rd. cross site.	MOD	HIGH	MOD	South Northeast Hills	GE
LAN03	Garski Flowage	474	Mixed swamp conifer/hdwd with upland hdwd inclusion. Follows Rabe Crk. and Garski flowage.	Slight disturbance by access roads, farm inclusion, and drainage history. Well buffered on east rim by Menominee Indian Reservation. Hill Rd. forms southern border. Areas excluded from site fragmented by pine plantations, and agriculture.	MOD	LOW	MOD	South Northeast Hills	GE
LAN04	Moose Lake	2484	Mixed swamp conifer/hdwdws with upland hwdws forming majority of northern rim. Swamp and lowland hwdws follow Moose Lake and Red River closely. Perch Lake, Little W. Branch Wolf River, Mayking Crk., Sipes and Moose Springs included in site.	Roading, pine plantations and agriculture limit continuity. Well buffered along far east edge by Menominee Indian Reservation. Park, Crestwood, Riverside and Moose Lake Road cross site.	HIGH	MOD	MOD	South Northeast Hills	GE
LAN05		1491	Mixed upland hwdws bordered by swamp conifers along east rim. Majority well buffered by hwdws.	Eastern borders of hwdws indicate past harvesting by secondary growth, while lowland areas demonstrate disturbance by access roads and minor development. Railway bisects site. Areas excluded from site become disrupted by roading and farm inclusion.	HIGH	LOW	MOD	South Northeast Hills	UB
LAN06	Deneault Springs State Fishery Area	3144	Mixed swamp conifer/hdwdws with upland hdwd inclusion. Site follows West Branch Red River with potential to support sedge meadow along river. Deneault Springs State Fishery Area included. Potential to support sedge meadow of reed canary and Carex along southern end of West Branch Red River.	Interior of site remains intact while borders and westcentral portions disrupted by pine plantations, agriculture, and roading. Hwy 47, Maple, Rollwoods, Christie and access roads present.	MOD	LOW	MOD	South Northeast Hills	GE
LAN07	Dollar Lake	418	Small mixed swamp conifer/hdwdws. Dollar Lake present. Potential to support bog community.	Demonstrates little disturbance, however, poorly buffered as site encompassed by agriculture, pine plantation and roading.	LOW	LOW	HIGH	South Northeast Hills	WB
LAN08	Florence Lake	1383	Mxd swamp conifer/hdwdws bordered by upland hwdws consisting of young poles and small sawtimber. Eastern border supports intact swamp conifers with dense canopy with lowland shrub wetland forming area's S. rim. McGee Creek and Florence Lake included.	Roading bisects site. Lowland areas intact while past harvesting and access roading disrupt portions of interior of hwdws. Agriculture forms majority of site's east border.	MOD	HIGH	LOW	South Northeast Hills	AQ/UB

Site ID	Site Name	Acreage	Site Description	Threats/Disturbance factors	Landscape Context	Ownership Context	Inspection Priority	Ecological Landscape	Survey Type
LAN09		748	Lowland shrub wetland in conjunction with mixed swamp conifer/hdws following Hunting River. Potential to support sedge meadow and alder thicket along Hunting River.	Old railroad grade and access roads disrupt site. Areas excluded demonstrate extensive harvesting and access roads.	MOD	HIGH	LOW	North Northeast Hills	AQ/WB
LAN10	Pickeral Creek	2247	Mixed swamp conifer/hdws with upland hdwd inclusion. Lowland shrub wetland following path of Wolf River. Potential to support sedge meadow along Spider Crk. Spider Crk. Flowage, Mud and Pickerel Creek included.	Lowland areas intact, while hdws indicate past harvesting along east border of Miniwakan Lake and in portions of interior. Access roads and Hwy U disrupt continuity. Areas excluded include areas of extensive agriculture, roading, and past harvesting.	MOD	HIGH	MOD	North Northeast Hills	AQ/WB
LAN11	Turtle Lake	1033	Upland hardwoods encompass Turtle Lake and small patches of lowland shrub wetland/swamp conifers. Wolf River forms east border. Potential to support hemlock along west rim of hdws.	Past harvesting in portions of interior, in addition to roading. Areas excluded fragmented by farm, past harvests, access roads, and pine plantations.	HIGH	HIGH	MOD	North Northeast Hills	GE
LAN12	Poor Farm Spring	2386	Upland hdws bordering mixed swamp conifer/hdws along Ninemile Crk. Lowland shrub wetlands with potential to support sedge meadow along Crk. Hdws forming west border indicate potential for hemlock inclusion. Site included in Nicolet National Forest.	Interior relatively intact with minor disturbance by access roading and past harvesting. Areas excluded demonstrate disturbance by extensive harvesting of aspen/hdws and access roading.	HIGH	HIGH	HIGH	North Northeast Hills	UB
LAN13		2197	Mxd. swamp conifer/hdws with upland hdwd inclusion following Wolf River. Areas of most potential closely border Wolf River, as site becomes quite disrupted as shift away from River. Wolf State Fishery Areas & Ninemile Crk included.	Access roads, railway, and agriculture follow site closely. Areas excluded demonstrate past harvesting and disturbance by access roading, pine plantations, and farm inclusion.	MOD	HIGH	LOW	South Northeast Hills	AQ
LAN14	Goto Lake	711	Upland hdws encompass Goto Lake while lowland shrub wetland forms southwestern border of lake. Mixed swamp conifer/hdws follow Deer Crk, including a small dense canopy of swamp conifers with potential to support tamarack, cedar and b.spruce along E.rim.	5th Avenue Rd, in addition to access rds along southern and eastern rims disrupt site. Subject to encroachment by agriculture, residential development, and past harvesting of hdws in portions of interior. Areas excluded demonstrate heavy past harvesting.	MOD	HIGH	MOD	South Northeast Hills	GE
MRN01		822	Mixed upland hdws neighboring swamp conifer/hdws. Smaller emergent/lowland shrub wetland along south border.	Site intact, and well buffered along western rim by Plover River while remaining borders subject to farm inclusion. Old Lake and South Pole Road disrupt site.	MOD	LOW	MOD	South Northeast Hills	WB
MRN02	Mayflower Lake, Mud Lake	1165	Emergent/lowland shrub wetland forms east border of Mud Lake, while swamp conifer inclusion (cedar, tamarack) in conjunction with red maple, and ash form majority of south rim. Potential to support sedge meadow along Mayflower Lake.	Interior of wetland intact while east portion of site subject to encroachment by agriculture, minor development, and access roads.	LOW	LOW	MOD	South Northeast Hills	WB
MRN03	Norrie Lake	1337	Lowland shrub wetland and swamp conifers with minor upland hdwd inclusion. Potential to support bog community. Go-To-It, and Norrie Lake included.	Site demonstrates past ditching and drainage. Followed closely by agriculture and roading. Railway bisects site in addition to pipeline.	LOW	LOW	LOW	South Northeast Hills	WB
MRN04	Bass Lake	996	Mixed swamp conifer/hdws with upland hdwd inclusion. Small areas of emergent/lowland shrub wetland forming south border of Bass Lake. McVay Brook, Bass, Lost and Muddy Lake included.	Site disjunct on account of agriculture, pine plantation and roading. Past harvesting follows farm inclusion borders. Access roads, Breske, and Bass Lake Rd bisect site.	LOW	MOD	MOD	South Northeast Hills	WB
MRN05		1479	Mixed swamp conifer/hdws with upland hdwd inclusion. Swamp conifers (cedar, tamarack, b.spruce) comprise majority of southwestern rim. Potential to support sedge meadow along path of Flume Creek.	Access roads disrupt western rim. Pine plantations and farm inclusion fragment site.	MOD	LOW	LOW	South Northeast Hills	GE
MRN06	Moen Lake	505	Swamp hdws form southwestern border of Moen Lake. Mixed upland hdwd/conifer inclusion neighboring mixed swamp conifer/hdws comprise eastern portions of site. Little Wolf River present.	Minimal disturbance-followed closely by small pine plantation, agriculture and roading. Fox Lane crosses northern rim of site. Excluded areas become fragmented by roading, and farm inclusion.	LOW	LOW	MOD	South Northeast Hills	UB
MRN07		1298	Emergent/lowland wetland encompassed by swamp conifer/hdws. Upland hdwd inclusion throughout portions. Swamp conifers form dense canopies (cedar, tamarack) comprising less than 40% of site.	Interior of site intact while borders poorly buffered. Roading bisects site. Areas excluded from site fragmented by past harvesting, farm inclusion, and roading.	MOD	LOW	MOD	South Northeast Hills	WB

Site ID	Site Name	Acreage	Site Description	Threats/Disturbance factors	Landscape Context	Ownership Context	Inspection Priority	Ecological Landscape	Survey Type
MRN08	Mud Lake	723	Mixed swamp conifer/hdws encompassing Mud Lake indicating potential to support bog community. Norrie Brook passes through site.	Slight buffering by hdws along northern rim while remainder poorly buffered. Old and active railways present. Hwy D and access roads disrupt site.	LOW	LOW	MOD	South Northeast Hills	WB
OUT01		981	Mixed swamp conifer/hardwoods enveloped by farmland. Site appears to support cedar, ash and maple. Northwest portions buffered by swamp conifer/hardwoods, while remaining borders represented by farm inclusion.	Channeled stream and roading bisect site. Overall poorly buffered.	LOW	LOW	LOW	North Central Plains/Southeast Glacial Plains	WB
OUT02		702	Mixed conifer/hardwood swamp enclosed by farm inclusion. Northern and southern portions maintain a sparse canopy cover. Area may support sedge meadow along southern rim.	Spencer Rd. runs east-west through entire site. Pipeline bisects southern rim. Overall poorly buffered	LOW	LOW	MOD	North Central Plains/Southeast Glacial Plains	WB
OUT03		447	Mixed conifer/hardwood swamp including community of Northern wet-mesic forest. Site buffered by continued swamp in the SW while remaining borders represent agriculture inclusion.	Site indicates drainage and ditching history. Soo Line intersects SW.	MOD	LOW	LOW	North Central Plains/Southeast Glacial Plains	WB
OUT04		1390	Bottomland hardwood forest following the path of the Wolf River. Buffered by emergent wetland in southern portions while farmland accounts for remaining landscape buffers.	Areas following path of river closely demonstrate little disturbance, indicating more mature forest. Hwy M divides site running north-south.	MOD	LOW	HIGH	North Central Plains/Southeast Glacial Plains	WB/AQ /SB
OUT05		968	Bottomland hardwoods with wetland dispersed throughout. Site appears to support a majority of secondary growth along river. Site follows Wolf River, acting as a landscape buffer. Remaining area poorly buffered by agriculture.	Channeled streams adjoin site.	MOD	LOW	MOD	North Central Plains/Southeast Glacial Plains	WB/AQ
OUT06		1143	Portions of swamp conifers including tamarack, and spruce border wetland present. Swamp hardwoods comprise southern rim. Site has potential to support open bog in central portions of site.	Past drainage through southcentral area.	MOD	HIGH	MOD	North Central Plains/Southeast Glacial Plains	WB
OUT07	Shakey Lake	356	Swamp conifer/hardwood forest encompassing an emergent wetland area which presents possibility of supporting sedge meadow. Natural community of possible significance includes Northern wet-mesic forest. Shakey Lake is positioned in center of site.	Site selected indicates relatively little disturbance.	HIGH	HIGH	HIGH	North Central Plains/Southeast Glacial Plains	WB
OUT08		1347	Extensive bottomland hardwoods with interspersed shrub wetland and swamp conifers. Site follows the path of the Wolf River leaving portions open and with standing water.	Farm inclusion forms majority of borders. Hwy 168 divides site.	HIGH	HIGH	MOD	North Central Plains/Southeast Glacial Plains	AQ, SB
OUT09		1092	Swamp hardwoods following path of Black Creek. Swamp conifer comprise less than 20%. Areas along southwestern rim demonstrate secondary growth indicating past disturbance. Western border maintains more open shrub wetland appearance.	Continuation of hardwoods along southwest act as partial landscape buffer while remainder bordered by agriculture. Levees are present at both the northern and southern borders of the site.	MOD	LOW	MOD	North Central Plains/Southeast Glacial Plains	AQ
OUT10		669	Mixed swamp conifer/hardwoods enclosed by farmland. Site appears to support cedar, tamarack, black spruce, ash, and maple. Toad Creek bisects northern portions of site.	Access roads present in outlying borders following fragmented farmland. Central portions less disturbed.	LOW	LOW	LOW	North Central Plains/Southeast Glacial Plains	WB
OUT11	Mack State Wildlife Area	2781	Site selected is part of greater mixed swamp conifer/hardwood stand. Southern portions of site include more mature forest including cedar, red maple, and basswood, while central portions of site remain more open with young poplar.	Western Railway, Herman Road and access roads cross area. Site part of Mack State Wildlife Area. Levees exist on western border, while remaining borders consist of agriculture.	MOD	HIGH	HIGH	North Central Plains/Southeast Glacial Plains	WB
OUT12	Deer Creek State Wildlife Area	1597	Shrub wetland in conjunction with conifer/hardwood wetland areas. Southwestern rim demonstrates potential to support open bog. Site part of the Deer Creek State Wildlife Area.	Relatively well buffered by bordering emergent/deciduous wetland. Channeled streams present throughout.	MOD	HIGH	MOD	North Central Plains/Southeast Glacial Plains	WB
OUT13	Maine State Wildlife Area	1542	Shrub wetland encompassing sparse conifers comprise majority of site. The northern border includes deciduous wetland species with upland hardwood inclusion. Part of Maine State Wildlife Area.	Majority poorly buffered by farmland. Northern area indicates drainage history.	MOD	HIGH	MOD	North Central Plains/Southeast Glacial Plains	WB

Site ID	Site Name	Acreage	Site Description	Threats/Disturbance factors	Landscape Context	Ownership Context	Inspection Priority	Ecological Landscape	Survey Type
OUT14	Outagamie State Wildlife Area	2705	Extensive monotypic bottomland hardwoods following the path of the Wolf River. Hardwood species predominately comprised of silver maple, ash, and swamp white oak. Western portion includes shrub wetland. Part of Outagamie SWA.	Closely bordered by farmland. Hwy M bisects western portion while levees neighbor northern border of site. Wetland area indicates past drainage. Remaining hardwoods maintain less disturbed community.	MOD	HIGH	MOD	North Central Plains/Southeast Glacial Plains	SB
OUT15		89	Swamp conifer site maintaining a more closed stand of swamp conifers in central portions while the northwestern area remains relatively sparse.	Northern and western borders well buffered by hardwoods while remainder outlined by farmland. Site selected demonstrates low disturbance.	MOD	LOW	HIGH	North Central Plains/Southeast Glacial Plains	WB
OUT16		601	Hardwood swamp forest bordering Embarrass River. Site has potential to support Floodplain forest.	Closely bordered by agriculture.	LOW	LOW	MOD	North Central Plains/Southeast Glacial Plains	GE
POR01	Kranski Lake	2061	Mixed swamp conifer/hdws comprise majority of northern border while emergent/lowland shrub wetland forms southern portion. Some upland hdwd inclusion. Kranski Lake and Tomorrow river are included in area.	Past drainage and ditching in northcentral and southern portions, while roading, pine plantations, and farm inclusions follow borders. Hwy 66 divides portions.	LOW	LOW	MOD	South Northeast Hills	UB
POR02		52	Small area with potential to support Northern mesic forest with hemlock inclusion.	Western and eastern edges demonstrates past harvesting while interior remains intact with large canopy cover in northeast. Fragmented swamp conifer/hdws buffer majority, while Hwy Z forms south border.	MOD	LOW	MOD	South Northeast Hills	UB
POR03		744	Mixed swamp conifer/hdwd site with younger monotypic upland hdwd inclusion in northwest. Potential to support sedge meadow. Flume Crk. bisects site.	Linden Rd, access roads, and farm inclusion disrupt site.	LOW	HIGH	LOW	South Northeast Hills	GE
POR04		522	Potential to support Northern dry-mesic forest. Conifer inclusion greater than 50%. Two kettle bogs located within site.	Interior demonstrates little disturbance while borders disrupted by past harvesting and pine plantations along farmland. Slight buffering by upland hdws along north border. Sunset Lake Rd. and Hwy Z cross portions.	MOD	HIGH	HIGH	South Northeast Hills	UB
POR05	Sunset Lake	832	Upland hdws with conifer comprising approximately 30% of site. Sunset, Minister, Skunk, and Budberg Lake present. Past harvesting along borders and portions of interior. Potential to support Northern mesic forest dominated by maple with hemlock inclusion.	Fragmented by Boy Scout Camp, and roading. Site buffered by upland hdws along eastern borders with remaining areas subject to encroachment by access roads, and farm inclusion. Hwy T and Sunset Lake Rd. bisect site.	MOD	LOW	MOD	Central Sand Hills	AQ,UB
POR06		1072	Upland hdws bordering mixed swamp conifer/hdws. Waupaca River included in site. Potential to support Northern dry-mesic forest with conifer comprising 50% area. Although poorly buffered, area has little disturbance.	Fragmented by pine plantation, farm inclusion, and roading. Hwy D, Hwy DD and access roads disrupt site.	LOW	HIGH	LOW	Central Sand Hills	UB
POR07	Wolf Lake	204	Relatively young monotypic upland hdwd stand encompassing Wolf Lake and smaller ponds.	Past harvesting and agriculture along borders. Buffering by hdws on southern edge.	MOD	HIGH	MOD	Central Sand Hills	AQ,UB
POR08	Fountain Lake	1000	Upland hdws neighboring mixed swamp conifer/hdws following Emmons Crk. Emergent/lowland shrub wetland along path of Emmons Crk. Deans and Fountain Lake included in site.	Smaller monotypic forest canopies indicate past harvesting in portions of site. Farm inclusion, roading and pine plantations. Lake Stratton Rd. bisects portions.	LOW	HIGH	MOD	Central Sand Hills	AQ,UB
SHA01	Gardner Creek Hrwds.	995	Mature Northern Hardwoods on drumlins bordering Gardner Creek and west of Lower Red Lake. Swamp hardwood inclusion focused in the northeastern branch. Most of hardwoods located in Stockbridge-Munsee Indian Reservation.	Enclosed by farmland, and pine plantations with the exception of the Menomonee Forest buffering the sites eastern border. Access roads, Butternut road and Lower Lake road disrupt lower borders.	MOD	HIGH	MOD	South Northeast Hills	UB
SHA02	Loon Lake Swamp	541	Swamp conifers bordering Loon Lake with small ridge of mature Hemlock hardwood. Development surrounding site, but drainage appears intact.	Agriculture, development and Park Avenue intersect site.	LOW	LOW	MOD	North Central Plains/Southeast Glacial Plains	UB
SHA03	Spencer Creek Marsh	2369	Extensive mixed conifer/hardwood swamp with upland hardwood inclusions forming the lower rim as a landscape buffer. Stream headwaters include Mill and Spencer Creek. Majority of swamp conifers including cedar and tamarack are located in the northeast.	Past ditching and drainage present in the northeast. Site fragmented by roading and agriculture. Hwy 29 and Winkle Road cross site west-east, while Leopold Road and Hwy U run north-south. Site SHA 04 forms southern border while remainder is agriculture.	MOD	LOW	MOD	South Northeast Hills	AQ,WB

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SHA04	Mill Creek Marsh	3628	Extensive hardwood swamp bordering large drumlin w/ mature hardwood forests on steep N, E and W slopes located primarily on the northern and southern borders. Stream headwaters present include Mill and Spencer Creek.	Agriculture forms interior areas excluded from site. Pine plantations, agriculture and roading disrupt site. Leopolis, Old Shawano Road and Cedar lane cross site. Hwy 29 forms northern border, while agriculture forms east and west rims.	MOD	LOW	HIGH	South Northeast Hills	UB, SB
SHA05	Pella Swamp	2653	Mixed swamp conifer/hardwood with upland hardwood inclusions in central areas. Conifer cover focused in eastern border consisting of black spruce, tamarack, and cedar. Hydes creek intersects southern portion of site.	Western border of site relatively well buffered by continuous swamp hardwoods while eastern border consists of farmland.	MOD	LOW	MOD	North Central Plains/Southeast Glacial Plains	AQ, WB
SHA06		148	Small site comprised of mixed conifer/hdwd wetland with upland hardwood inclusion in northwest rim.	Some buffering by upland hardwood inclusion, while fragmented farmland encloses majority of site.	LOW	MOD	LOW	North Central Plains/Southeast Glacial Plains	WB
SHA07	Navarino Marsh	2436	Site part of greater wetland area. Site forms a shrub/deciduous wetland with Shioc River bisecting the eastern border. Sedge meadow present along southern rim. Part of Navarino SWA.	History of ditching and drainage in western and eastern area. Agriculture and pine plantations encompass majority of site.	HIGH	HIGH	HIGH	North Central Plains/Southeast Glacial Plains	AQ, WB
SHA08	Navarino Marsh	4262	Shrub/hardwood wetland comprising majority of west with potential to support sedge meadow along northern border. Emergent wetland present throughout interior. Standing water throughout area as West Branch and Shioc River cross site.	Portions of site relatively fragmented by pine plantations and farm inclusion. Soo line bisects site.	MOD	HIGH	MOD	North Central Plains/Southeast Glacial Plains	AQ, WB
SHA09		41	Potential to support Northern Mesic forest. Mature hdwds directly south of Menomonee Indian Reservation. Lake forms entire central portion with small conifer wetland along eastern border.	Little disturbance. Eastern border consists of farmland while remainder Menomonee Indian Reservation.	HIGH	LOW	HIGH	South Northeast Hills	GE
SHA10		334	Mixed hdwd forest with potential to support Southern mesic community.	Southern border demonstrates second growth as do portions of the western border enclosing the more mature forest. Area closely bordered by pine plantation, farm and Hillview, Leopolis and Maple Ridge Roads.	LOW	LOW	MOD	South Northeast Hills	GE
SHA11		538	Mixed hdwd forest with swamp conifer inclusion on eastern border. Potential to support Northern dry-mesic forest along western edge. Majority of eastern border emergent-shrub wetland.	Majority of eastern and southern borders subject to past ditching and drainage. Entire site enclosed by agriculture. Northern border well buffered by hdwds.	MOD	LOW	MOD	North Central Plains/Southeast Glacial Plains	GE
SHA12	Baker Lake	4340	Predominantly emergent/lowland shrub wetland to the north with mixed swamp conifer/hdwd comprising remainder. Upland hdwd inclusion. Middle Branch Embarrass River, Cranberry, and Baker Lake present.	Site demonstrates past drainage and ditching throughout northern, and westcentral portions. Quite disjunct due to farm inclusion and roading. Access roads, Cherry, Cranberry, and Lake Drive Rd. interrupt site.	MOD	LOW	LOW	South Northeast Hills	WB
SHA14	Mattoon Swamp	3635	Mixed swamp conifer/hdwd with emergent/lowland shrub wetland inclusion along northwest border. Upland hdwd inclusion. Elmhurst Crk. and Mattoon Swamp included.	Southcentral interior less disturbed as compared to disjunct borders. Well buffered along northern rim by hdwds, while remaining surrounding areas become fragmented. Hwy 45, Hwy Z, and old railroad grade present.	MOD	LOW	MOD	South Northeast Hills	WB
SHA15		250	Small mature upland hdwd site neighboring mixed swamp conifer/hdwd.	Areas excluded demonstrate past harvesting in addition to farm inclusion. N.Branch Embarrass River forms southern rim while remaining edges poorly buffered.	LOW	LOW	MOD	South Northeast Hills	GE
SHA16		1533	Mixed swamp conifer/hdwd following Middle Branch Embarrass River. Swamp conifers (cedar and tamarack) comprise less than 30%. Potential to support sedge meadow along river.	Majority of site demonstrates little disturbance. Northern and eastern borders buffered by continuing mixed swamp. Elder Rd. intersects southern portions.	MOD	LOW	MOD	South Northeast Hills	GE
SHA17		2642	Mixed swamp conifer/hdwd neighboring upland hdwds. Potential to support sedge meadow along Logemanns Crk.	Majority of interior indicates little disturbance. Areas excluded demonstrate past harvesting in addition to fragmentation by agriculture. Access roads, Swamp Lane, Weasel Dam and Leopolis Rd. disrupt site.	MOD	LOW	MOD	South Northeast Hills	GE

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SHA18		4487	Mixed hdwds in conjunction with mxd swamp conifer/hdwds. Potential to support sedge meadow along Cleveland Crk. S. Branch Embarrass River, Cleveland and Larsen Crks present.	Past harvesting along south and east rims, in addition to access roads. Although becomes more frag. by agriculture & roading, majority of borders buffered by mxd upland and continuous lowland hdwds. Hwy M and P, access roads, and Steinke Rd. disrupt site.	MOD	LOW	MOD	South Northeast Hills	UB
SHA19	Stockbridge-Munsee Indian Reservation	1450	Mixed upland hdwds with mxd swamp conifer/hdwds forming majority of south. Potential to support bog community. Site included in Stockbridge-Munsee Indian Reservation. Silver and Hennig Crk. present.	Site followed closely by agriculture, pine plantations and roading along west borders while portions of east part of Stockbridge-Munsee Reservation. Past harvesting in portions of north. Access roads, Evergreen and Stony Curve Rd. cross south rim.	MOD	MOD	MOD	South Northeast Hills	WB
SHA20		4119	Mixed swamp conifer/hdwds with upland hdwd inclusion. Site follows Embarrass River and Pony Creek.	Past harvesting of swamp conifers in northwest and of hdwds along borders of Hwy D. Additional disruption by access roads throughout interior, farm inclusion and Maple Lane Rd.	MOD	LOW	LOW	South Northeast Hills	GE
WAP01		828	Mixed upland hardwoods with oak present on two drumlins w/ 100' relief. Mostly mature forest with little evident harvesting. Farthest eastern rim may support Southern mesic forest. Minor pine inclusion.	Access roads present along western edge. Landscape buffering low, as all sides and interior borders of site consist of farm inclusion.	LOW	LOW	MOD	North Central Plains/Southeast Glacial Plains	UB
WAP02	Navarino SWA	7171	Extensive bottomland hardwoods comprised of silver maple, swamp white oak and ash, with mixed upland hardwoods following the path of the Wolf River. Southwestern portions demonstrate possibility of supporting Northern sedge meadow.	Site included in Navarino SWA. Hwy 156 crosses east-west.	HIGH	HIGH	MOD	North Central Plains/Southeast Glacial Plains	SB
WAP03	Marble Swamp	4418	Extensive swamp conifer complex w/ swamp hardwoods. Margin comprised of fragmented upland hardwood. Poorly buffered by farm inclusions on surrounding uplands. Site includes Shaw Creek and Mud Lake headwaters.	Site demonstrates past ditching and drainage throughout interior.	MOD	LOW	HIGH	North Central Plains/Southeast Glacial Plains	WB
WAP04	Symco Bottoms	254	Stretch of Little Wolf above Symco. Bottomland hardwoods mostly degraded and logged, with some mature portions with potential quality.	Borders of site comprised of pine plantation and agriculture.	LOW	LOW	LOW	North Central Plains/Southeast Glacial Plains	GE
WAP05	Blueberry Marsh	1643	Swamp hardwood/conifer complex with headwaters of Little Creek. Conifer cover more centralized with cedar, tamarack, and spruce dominating. Emergent wetland present in most western portions.	Roading, disturbance w/ apparent pasturing around margins and cutting in some parcels.	MOD	LOW	MOD	North Central Plains/Southeast Glacial Plains	WB
WAP06	Flynn Lake Swamp	3407	Extensive swamp hardwoods complex w/ conifer inclusions. Some mature upland forest inclusions. Site has potential to support Northern wet mesic forest in area west of Flynn Lake. Site contains headwaters of Maple Creek.	Tank Road and pipeline bisect western edge of site. Access roads present along borders following fragmented farmlands. Overall site demonstrates relatively little disturbance.	HIGH	LOW	MOD	North Central Plains/Southeast Glacial Plains	WB, AQ
WAP07	Cedar Creek Headwaters	934	Conifer/hardwood swamp NE of New London. Site comprised of shrub wetland along base of Cedar Creek in addition to mixed hardwood/conifer uplands border. Site maintains a more open character.	Buelon Road crosses east-west. Site demonstrates relatively little disturbance throughout interior, while borders of site subject to encroachment by farmland.	MOD	HIGH	MOD	North Central Plains/Southeast Glacial Plains	UB
WAP08	Wolf River State Fishery Area	1064	Bottomland hardwoods following Wolf River dominated by silver maple, elm, ash, and swamp white oak interspersed w/ upland forest ridges on riverine sand terraces. Emergent wetland present south of Hwy 54. Portions south of Hwy 54 are part of Mukwa SWA.	Mature hardwoods w/ little apparent disturbance. Railway crosses northernmost border. Site divided by Hwy 54.	HIGH	HIGH	HIGH	North Central Plains/Southeast Glacial Plains	UB
WAP09	Mukwa State Wildlife Area, Shirttail Bend	479	Extensive bottomland hdwds. Mostly younger - monotypic stands bordering Wolf River dominated by silver maple in addition to elm, ash, and swamp white oak. Central eastern portion of site offers potential to maintain Floodplain forest.	Emergent wetland following the river show little disturbance as compared to areas bordering farm inclusion. Generally site demonstrates little disturbance. Site includes Little Wolf River and Shirttail Bend.	HIGH	HIGH	MOD	North Central Plains/Southeast Glacial Plains	SB

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WAP10	Mukwa State Wildlife Area	229	Swamp hdwds dominated by silver maple. Mature, good quality upland hdwd complex on ravine sand terraces w/ oak, aspen and oxbow wetlands. Site follows Wolf and Little Wolf River and included in Mukwa SWA.	Area well buffered with the exception of the western border which is followed closely by agriculture and roading. Overall site demonstrates little disturbance.	HIGH	HIGH	HIGH	North Central Plains/Southeast Glacial Plains	UB, WB
WAP11		306	Small but intact wetland complex - primarily shrub w/ emergent wetland/sedge meadow and some swamp conifer located in central portion of site. Little disturbance with the exception of roading and residence positioned in W. border.	Site well buffered by Wolf River on western border while surrounding borders comprised of fragmented farmland with the exception of the northern edge comprised of hardwoods.	MOD	MOD	LOW	North Central Plains/Southeast Glacial Plains	WB
WAP12	Horseshoe Bayou	2407	Extensive hdwd bottoms, mostly harvested since 1980, or younger even-aged second growth. Central areas indicate potential to support Floodplain forest. Areas outlining Partridge Crop Lake may support Northern wet forest.	Few areas of mature forest. Site follows path of Wolf River with small intact wetland areas throughout. Overall well buffered with little disturbance.	HIGH	MOD	MOD	North Central Plains/Southeast Glacial Plains	SB
WAP13	Royalton Marsh	3240	Extensive emergent wetland-lowland shrub/sedge meadow complex N. of White Lake. Swamp conifer and upland forest margins.	Drainage and ditching apparent throughout but restoration potential appears good. Majority well buffered by White Lake while remainder subject to encroachment by pine plantation, channeled streams and farm inclusion. Marsh Road divides site.	HIGH	LOW	MOD	North Central Plains/Southeast Glacial Plains	WB, SB
WAP14		548	Small shrub wetland/swamp conifer complex west of White Lake. Site appears to support cedar, tamarack, and spruce maintaining closed forest in central portions. Conifers enclosed by lowland shrub as buffer.	Little disturbance but poorly buffered.	LOW	LOW	LOW	North Central Plains/Southeast Glacial Plains	GE
WAP15		591	Two minor swamp conifer complexes maintaining dense canopy located west of Partridge Crop Lake. Swamp hardwoods and lowland shrub outline swamp conifers.	Poorly buffered but little apparent disturbance. Landing Road and farm inclusion partially separate site.	LOW	LOW	LOW	North Central Plains/Southeast Glacial Plains	GE
WAP16	Waupaca River Uplands	399	Small site comprised of upland hardwoods with some mature white pine superstory over wetland/sedge meadow. Site located east of Waupaca following Waupaca River.	Closely bordered by agriculture. Site demonstrates relatively little disturbance which may be attributed to its topography.	MOD	LOW	MOD	North Central Plains/Southeast Glacial Plains	UB, AQ
WAP17	Jenny Bayou	1535	Extensive sedge meadow, shrub wetland complex including swamp hardwoods in patches. Area west of Jenny Bayou may support Shrub-Carr. Majority of site follows Waupaca River leading into Jenny Bayou on Wolf River.	Some drainage but good restoration potential with some natural spring/creek drainages. Site buffered by surrounding swamp hardwoods but disrupted by pipeline and Soo line running NW-SW, River road intersecting northernmost edge, and access roads.	HIGH	MOD	HIGH	North Central Plains/Southeast Glacial Plains	UB, AQ
WAP18	Templeton Bayou	535	Bottomland hardwoods/emergent wetland complex with well developed riverine sand terraces along Wolf River. Hardwoods mostly mature with little disturbance history.	Area well buffered as majority enclosed by Wolf River following Templeton Bayou.	HIGH	MOD	HIGH	North Central Plains/Southeast Glacial Plains	UB, WB
WAP19	Freemont Station Swamp	1955	Emergent wetland-lowland shrub interspersed with swamp conifer complex indicating minor drainage history. Upland hdwd borders act as buffer, with Wolf River on western border.	Disturbance minimal with access road off farm inclusion forming remaining borders. Drainage and ditching history primarily in central portions.	MOD	MOD	LOW	North Central Plains/Southeast Glacial Plains	WB
WAP20	Caledonia Hardwoods	1457	Mostly mature upland hardwoods in several blocks of farm/residential matrix. Oak, mesic hardwoods and some pine inclusions.	Little cutting evident in blocks. Site subject to encroachment by residential and farm inclusion. Pines road and Hwy HH cross site running North while Soo line and Hwy H intersect NW-SE borders.	LOW	LOW	MOD	North Central Plains/Southeast Glacial Plains	UB
WAP21	Partridge Lake and Wetlands	2482	Emergent wetland complex with areas of swamp hardwoods bordering Partridge Lake.	West side shows drainage history and ditching. East side bordering Wolf River has very little disturbance and remarkable pothole mosaics.	HIGH	MOD	HIGH	North Central Plains/Southeast Glacial Plains	AQ, WB
WAP22		610	Small emergent wetland-lowland shrub, swamp hardwood/conifer complex located west of Partridge Lake. Conifer cover primarily in northeastern border of site forming dense canopy.	Little disturbance but poorly buffered while farmland, pine plantations and roading form borders of site.	LOW	LOW	MOD	North Central Plains/Southeast Glacial Plains	WB
WAP23		114	Mixed hardwoods with potential to support Northern mesic forest.	Area enveloped by fragmented farmland and pine plantations.	LOW	LOW	MOD	North Central Plains/Southeast Glacial Plains	GE

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WAP24		81	Small mixed deciduous site with conifer inclusion in mature canopy.	Site demonstrates past harvesting as second growth is present along borders.	LOW	LOW	MOD	North Central Plains/Southeast Glacial Plains	UB
WAP25		2799	Mixed swamp hdwd/conifer with lowland shrub and upland hdwd inclusion. Headwaters for South Branch Pigeon River and Geskey Crk. Site neighbors Keller Lake.	Overall, little disturbance in interior, however, site disjunct due to farm inclusion while Brewer Rd. and Hwy G bisect site.	MOD	LOW	LOW	South Northeast Hills	WB,UB
WAP26		3137	Upland hdwds with mxw swamp hdwd/conifer and lowland shrub wetland inclusion. Monotypic lowland hdwds outline shrub wetlands in south while upland hdwds form northern portions. Potential to support sedge meadow.	Several streams including Geskey Crk. cross site. Access roads, agriculture, Hwy J, Brewer Rd., and an old railroad grade disrupt site. Swamp hdwd/conifer form east border.	MOD	LOW	MOD	South Northeast Hills	WB,UB
WAP27	Mud Lake	5212	Extensive upland hdwds with mxw. swamp hdwd/conifer and shrub wetland inclusion. Spaulding and Comet Creek and Mud Lake included in site.	Site well buffered with minimal disturbance. Old railroad grade, Comet and Mud Lake road cross site.	HIGH	HIGH	HIGH	South Northeast Hills	UB
WAP28	Jackson Lake	127	Small swamp conifer site bordering Jackson Lake. Potential to support sedge meadow.	Little disturbance but lacking landscape buffers. Slight buffer by hdwds in north while Helgeson Rd. forms west border. Pine plantations and agriculture encompass remaining edges.	LOW	LOW	MOD	South Northeast Hills	
WAP29	Buck Lakes, Little Lake	1041	Mixed swamp conifer/hdwds encompassing Buck Lakes and Little Lake. South Branch Pigeon River included in site. Access roads present.	Past harvesting along borders of farm inclusions. Rooding, ditching, agriculture, and fish farm fragment site. Circle J Road crosses northern portions. Upland hdwds form landscape buffer along Little Lake.	LOW	LOW	MOD	North Central Plains/Southeast Glacial Plains	AQ, GE
WAP30		421	Mixed swamp conifer/hdwd encompassing small monotypic upland hdwds stand.	Well buffered by upland hdwds along northern and western borders. Excluded forested areas demonstrate past harvesting while remaining borders comprised of pine plantations, and agriculture.	MOD	LOW	LOW	South Northeast Hills	GE
WAP31		670	Mixed swamp conifer/hdwds. Branch of Flume Crk. included in site. Old railroad grade bisects site.	Southwestern portion of site indicates past harvest while interior of site intact. Upland hdwds-although majority demonstrate past harvests, form landscape buffer along northern and western edges while farm inclusion and roading form remaining borders.	MOD	LOW	LOW	South Northeast Hills	GE
WAP32		3837	Mixed swamp conifer/hdwds comprising majority of northern and eastern borders. Upland hdwd inclusion throughout interior and southern border. Lowland areas dominated by dense swamp conifer canopy supporting cedar, tamarack, and black spruce. Surrounding areas demonstrate past harvests. Area subject to encroachment by pine plantation & farm.	Whitcomb and North Fork Crk. included in site, in addition to Hwy E, and Stony Ridge Rd. Forested areas excluded demonstrate past disturbance by harvesting, and roading. Majority of site well buffered by upland hdwds.	MOD	MOD	MOD	South Northeast Hills	UB
WAP33		832	Upland hdwd with mixed swamp conifer/hdwd inclusion. Whitcomb and South Fork Crk. present on site. Potential to support Northern mesic forest. Neighboring area quite fragmented while interior unaffected.	Borders quite fragmented by agriculture, pine plantation and roading. Boelter Rd. crosses site.	LOW	HIGH	LOW	South Northeast Hills	UB
WAP34	Knutson Lake	1773	Emergent/lowland shrub wetland with upland hdwd inclusion comprising majority of southern unit. Northern portion supports mixed swamp conifer/hdwds. Potential to support fen community in northern portion. Lake Knutson and North Branch included in site.	Area demonstrates little disturbance within its interior. Buffering low, as borders are comprised of pine plantation, agriculture and roading. Hwy 161, Cozy Pine and Lake Knutson Road disrupt site.	LOW	LOW	MOD	South Northeast Hills	WB
WAP35		916	Mixed swamp conifer/hdwd with upland hdwd inclusion. Potential to support sedge meadow. Blake Crk. follows northern border. Potential to support sedge meadow. Unique area buffered by hdwds along its borders.	Fragmented by agriculture and minor development. Site indicates access roads, and past ditching in south, while northern portions less disturbed-however, both remain poorly buffered. Hwy 161 bisects site.	LOW	MOD	MOD	South Northeast Hills	GE
WAP36	Ogdensburg Pond	1186	Emergent/lowland shrub wetland in conjunction with mixed swamp conifer/hdwds. Emergent wetland follows path of	Interior demonstrates little disturbance while farm inclusion fragments south. Some past drainage in	LOW	LOW	LOW	South Northeast Hills	WB,AQ

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			Engibretson Crk. Ogdensburg included in site.	portions. Buffered by upland hdwds to north, while remaining borders subject to encroachment by pine plantations, agriculture, roads.					
WAP37		835	Mixed swamp conifer/hdwd with upland hdwd inclusion.	Site poorly buffered. Old railroad grade bisects site, in addition to past harvesting along southern and northeastern borders.	LOW	LOW	LOW	North Central Plains/Southeast Glacial Plains	GE
WAP38	Mud, Mynyard, Junction Lake	640	Swamp hdwds with upland hdwd inclusion. Lowland shrub wetland encompasses Mud Lake. Radley Creek, Mynyard and Junction Lake also included in site.	Agriculture fragments poorly buffered site. Pine plantations follow borders. Dayton, and Lake Stratton Rd. cross northern portion.	LOW	LOW	MOD	Central Sand Hills	GE
WIN01		3849	Emergent wetland with swamp hardwoods dispersed throughout. Wolf River and Pages Slough included in site bordering Lake Poygan. Location part of larger surrounding wetland area generally well buffered.	Little disturbance history with the exception of channeled water structures present in northcentral portions of site.	HIGH	HIGH	HIGH	North Central Plains/Southeast Glacial Plains	AQ, WB
WIN02		1284	Lowland shrub-emergent wetland bordering Rat River. Swamp hardwoods common on western edge of site indicating potential to support floodplain forest.	Disturbance history indicates minimal ditching and drainage in southern rim of selected site, however outside of site cropping and disturbance more prominent. Western rim buffered by swamp hardwoods.	MOD	LOW	LOW	North Central Plains/Southeast Glacial Plains	WB
WIN03		2275	Mixed swamp conifer/hardwoods following Rat River. Emergent wetland forms southern border of site. Potential to support Southern dry-mesic forest along westernmost border where hardwoods form more mature canopy.	Site indicates some drainage and ditching history in NW corner. Gravel pits on western border of site while Hwy M crosses north-south. Site well buffered by swamp hardwoods along northern edge while southern border agriculture.	HIGH	HIGH	HIGH	North Central Plains/Southeast Glacial Plains	AQ, WB
WIN04		317	Emergent-shrub wetland bordered closely by farmland. Sparse swamp hardwood inclusion.	Drainage history in northern portion of site.	LOW	HIGH	LOW	North Central Plains/Southeast Glacial Plains	WB
WIN05		537	Emergent wetland bordering Lake Winneconne. Northern branch of site has potential to support wet prairie community.	North side demonstrates drainage history, while western portions are closely bordered by farm inclusion and residential.	MOD	LOW	MOD	North Central Plains/Southeast Glacial Plains	WB
WIN06		48	Small mixed hardwoods located west of Wolf River. Site has potential to support Northern dry-mesic forest.	Northwestern border indicates secondary growth while eastern portions remain less disturbed. Buffering poor as enclosed by agriculture and development.	LOW	LOW	LOW	North Central Plains/Southeast Glacial Plains	GE
WIN07		143	Small mixed hardwoods with conifer inclusion. Site has potential to support Northern dry-mesic forest. Overall site has poor landscape buffering.	Southern border maintains more mature canopy while northern borders demonstrate secondary growth. Encroachment by pine plantations, residential, roads.	LOW	LOW	LOW	North Central Plains/Southeast Glacial Plains	GE
WIN08		425	Swamp hardwoods following Wolf River. Swamp hardwoods make up northern and southern borders while central portions consist of shrub-emergent wetland.	Site indicates past ditching and drainage though entirety of wetland while hdwds along northern border demonstrate less disturbance. Closely bordered by agriculture and residential with the exception of the eastern border forming wetland.	LOW	LOW	MOD	North Central Plains/Southeast Glacial Plains	WB
WSA01		469	Two swamp hdwd/conifer sites in conjunction with lowland shrub wetland. Rim of wetland area well buffered by hdwd.	Hwy I bisects southern portion while roading and farm inclusion divide stands. Remaining borders comprised of pine plantation. Site indicates some past ditching but minimal.	MOD	LOW	MOD	North Central Plains/Southeast Glacial Plains	WB
WSA02		655	Emergent wetland in combination with swamp conifer/hdwd. Mosquito creek crosses southern portions allowing for dispersed emergent wetland.	Majority of surrounding area and interior fragmented by farm inclusion and pine plantations. Eastern portions indicate past ditching and drainage while access roads disrupt northern border.	LOW	LOW	LOW	North Central Plains/Southeast Glacial Plains	GE
WSA03		854	Shrub wetland encompassing conifer wetland. Area northwest buffered by upland forest while remainder of site adjacent to agriculture. Alder creek crosses through northern rim.	Site demonstrates past ditching and drainage throughout interior and eastern border.	MOD	LOW	LOW	North Central Plains/Southeast Glacial Plains	WB

Site ID	Site Name	Acreage	Site Description	Threats/Disturbance factors	Landscape Context	Ownership Context	Inspection Priority	Ecological Landscape	Survey Type
WSA04		1046	Mixed swamp conifer/hdwd wetland. Northeastern border of site maintains majority of swamp conifers, while eastern rim comprised of mixed swamp conifer/hdwd stand. Southern and eastern borders include emergent and shrub wetland.	Farmland and Alder Creek outline site. Site indicates past ditching and drainage in interior and along north/south borders.	MOD	LOW	MOD	North Central Plains/Southeast Glacial Plains	WB
WSA05		695	Deciduous/shrub wetland forming northern and southern rim. Mixed swamp conifer/hdws interspersed with emergent wetland forming eastern edge. A creek follows the eastern border draining into the Pine River.	Overall site disturbance is minimal. Site bordered by farm inclusion with the exception of the continuation of the shrub/conifer wetland directly south.	MOD	LOW	MOD	North Central Plains/Southeast Glacial Plains	UB
WSA06		1075	Shrub wetland encompassing conifer wetland. Site appears to support cedar, tamarack, and black spruce. Streams intersecting site merge with the Pine River located south.	Fragmented agriculture encompasses majority of site with the exception of its northern border forming a deciduous wetland. Hwy H intersects southern portion. Site indicates past ditching and drainage primarily along eastern border.	LOW	MOD	MOD	North Central Plains/Southeast Glacial Plains	WB
WSA07	Poygan Marsh	2182	Emergent wetland bordering Lake Poygan. Northern and Southern regions are adjacent to agriculture while western portions of the site join a lowland deciduous forest.	Site buffered by wetland forming western border. Past ditching and drainage more prevalent in southern portion.	LOW	HIGH	LOW	North Central Plains/Southeast Glacial Plains	WB
WSA08		683	Deciduous wetland adjacent to Lake Poygan following Pine River. Site has potential to support sedge meadow.	Disturbance of forest minimal along the western border. Some roading bisects site. Majority of surrounding area agriculture.	MOD	HIGH	MOD	North Central Plains/Southeast Glacial Plains	WB
WSA09		226	Swamp hardwoods with swamp conifer inclusion in central portions. Some upland hardwoods present along southwestern border but majority of rim forms bottomland hardwoods.	Site outlined closely by fragmented farmland and roading.	LOW	LOW	LOW	Central Sand Hills	GE
WSA10	Big Cedar Lake	1181	Mixed swamp hdws with swamp conifer (cedar, b.spruce, tamarack) dispersed throughout. Emergent/shrub wetland forms southwestern border with mixed swamp hdwd/conifer occupying the southeastern edge. Big Cedar Lake is positioned in northcentral.	Small younger monotypic stands along eastcentral border indicate past harvests. Disturbed upland hdws form southern edge, while remaining borders comprised of pine plantations, farm inclusion, roading, and channeling of water. Hwy TT crosses site.	LOW	LOW	LOW	Central Sand Hills	GE
WSA11	Gilbert Lake	1497	Swamp hardwoods with emergent/lowland shrub wetland and swamp conifer inclusion. Wetland occupies southwestern border and demonstrates little disturbance. Gilbert Lake, Fenrich Springs, Pine River, and Humphrey Crk. are included in site.	Few mature hdws present. Roading, pine plantations, and farm inclusion follow borders closely. Hwy K and other roads bisect site.	MOD	HIGH	MOD	Central Sand Hills	WB,GE
WSA12	Pine River	586	Narrow site comprised of swamp hdwd following Pine River with swamp conifer inclusion. Swamp conifers represent less than 30% of site. Lowland shrub/emergent wetland forms southern border. Site has potential to support sedge meadow.	Access roads disrupt site while remaining borders followed closely by pine plantations and farm inclusion.	LOW	HIGH	MOD	Central Sand Hills	AQ,UB
WSA13	Carpenter Creek	438	Swamp hardwood with swamp conifers patch forming a closed canopy. Emergent wetland follows path of Carpenter Crk. while lowland shrub wetland forms eastern edge.	Access roads and channeled water disrupt site. Ditching present in central portions. Subject to encroachment of agriculture and roading.	LOW	LOW	MOD	Central Sand Hills	WB
WSA14	Timon Lake	54	Two small swamp hdwd sites with possible marsh communities neighboring both lakes. Timon lake is included in site.	Site is divided by roads, has minimal buffering by pine plantations, and is bordered by access roads and farms.	LOW	LOW	LOW	Central Sand Hills	AQ, WB
WSA15	Kusel Lake	42	Small wetland with standing water forming north border while potential prairie community south of wetland. Kusel Lake follows south edge of site closely.	Buffering minimal as roading forms south border while young hdwd stand creates eastern edge.	LOW	LOW	LOW	Central Sand Hills	AQ
WSA16	Norwegian Lake	444	Lowland shrub wetland and mixed swamp hdwd/conifer encompassing Norwegian Lake. Swamp conifer inclusion dominates north border while lowland shrub wetland occupies eastcentral portions.	Ditching in wetland slight. Area poorly buffered but demonstrates little disturbance with the exception of the western border. Hwy G follows borders closely. Some access roads present.	MOD	LOW	MOD	Central Sand Hills	AQ, WB
WSA17	Willow Creek	694	Swamp hdws with conifer inclusion following Willow Creek. Emergent wetland present along creek.	Disturbance minimal-however, site subject to encroachment by pine plantations, roading, and farm inclusion. Hwy G crosses the western edge.	LOW	HIGH	MOD	Central Sand Hills	AQ,WB

Site ID	Site Name	Acreage	Site Description	Threats/Disturbance factors	Landscape Context	Ownership Context	Inspection Priority	Ecological Landscape	Survey Type
WSA18	Little Silver Creek	984	Emergent/lowland shrub wetland. Potential to support sedge meadow. Site follows path of Little Silver Creek.	Site demonstrates past ditching and drainage. Hwy EE and Hwy W cross site. Site poorly buffered.	LOW	MOD	LOW	Central Sand Hills	WB
WSA19	Porters Lake	1166	Mixed swamp conifer/hdwd- part of larger Wautoma Swamp, including Porters Creek and Porters Lake. Swamp conifer stand demonstrating little disturbance with hdwd landscape buffering.	Interior of site demonstrates little disturbance while access roads, farm inclusion, pine plantation and residence disrupt southwest border. Hwy W follows northern border closely.	MOD	LOW	MOD	Central Sand Hills	WB
WSA20	Mount Morris	100	Small site with potential to support Northern dry-mesic community on north slope. Part of Mount Morris.	Past harvesting occurring throughout interior. Younger monotypic hardwoods and pine plantations form borders.	MOD	MOD	MOD	Central Sand Hills	UB
WSA21		143	Small swamp conifer and emergent wetland. Standing water in portions. Neighboring Irogami and Silver Lake.	Disturbance minimal, however site subject to encroachment by agriculture, residence, and roading. Hwy 21 follows south edge while additional roading divides site. Some hdwd inclusion in wetland. Poor landscape buffering alone eastern border.	MOD	LOW	MOD	Central Sand Hills	WB
WSA22	Cedar Springs Creek	1483	Swamp hdwds with slight swamp conifer inclusion comprising less than 20% of stand. Fairly monotypic lowland hdwds with areas of upland hdwds inclusion. Lowland shrub wetlands present along Cedar Springs Crk.	Site subject to past harvesting and ditching in northeastern portions while interior demonstrates little disturbance. Hwy Q and additional roading disrupt site. Areas closely following, but excluded from site consist of agriculture and gravel pits..	MOD	HIGH	HIGH	North Central Plains/Southeast Glacial Plains	WB
WSA23	Willow Creek	999	Emergent/lowland shrub wetland with sparse swamp hdwd/conifer inclusion. Follows path of Willow Crk. Potential to support sedge meadow.	Site demonstrates ditching and drainage while access roads, farm inclusion, and residential development border site. Hwy 21 forms southern edge.	LOW	LOW	LOW	North Central Plains/Southeast Glacial Plains	WB

## Table Legend

**Site ID:** Code includes County abbreviation and sequential numbering of all sites in each county. Expert site numbers start after the last Coarse Filter Screening site number.

**Site Name:** from USGS quadrangle maps; for internal reference only and may not be locally correct.

**Landscape Context:** HIGH - >75% buffering of highest quality portions; MOD – 25%-50% buffering of highest quality portions; LOW - <25% buffering of highest quality portions.

**Ownership Context:** HIGH – site adjoins or is partly State ownership; MOD – site is within one mile of State ownership; LOW – Site is more than one mile from State ownership.

**Inspection Priority:** HIGH – high likelihood of quality community or species element occurrences. MOD – moderate likelihood of quality community or species element occurrences; LOW – low likelihood of quality community or species element occurrences.

**Ecological Landscape:** Lists the ecological landscapes the site falls within.

**Suggested Survey Type:** AQ – aquatic communities; GE – general ecological; SB – songbird; UB – upland botanical; WB – wetland botanical.